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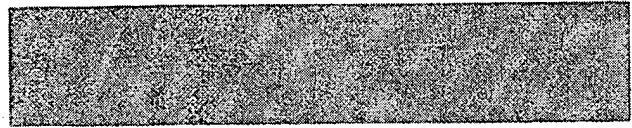
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The Return of Micropayments
Will Tiny Payments Finally Make Their Big Debut?

By Michael Hurwicz

Since the earliest days of the Web, visionaries dreamed of
the profits they'd make if only they could charge a few
pennies for each stock quote, weather update, and news
story viewed by consumers. Although that dream was lost
for a few years amidst claims that "content wants to be
free," many content providers are now showing a renewed
interest in micropayments because of floundering
advertising proceeds.

The micropayment concept is simple: Require consumers
to pay a trivial fee for each item of content he or she
downloads. Over time, those trivial fees add up to a large
revenue stream for sellers. For example, stores like
Amazon.com could sell music tracks for 50 cents apiece—
a bargain for audiophiles who prefer to compile their own
playlists or just don't want to purchase an entire album.
It's also not a bad deal for sellers, who are freed from the
expense of pressing, packaging, and distributing physical
CDs, not to mention the risk of getting stuck with excess
inventory.

Despite the potential benefits, there is a debate about
whether micropayments are feasible. Whereas prominent
figures like Jakob Nielsen and Nicholas Negroponte point
out the potential in micropayments, others argue that
consumers don't want them. In his December 2000 essay,
"The Case Against Micropayments," Clay Shirky claims
that the micropayment is "an idea whose time has gone."
He notes that users want easy access to content and
predictable pricing, similar to what they get with long-
term subscriptions to content. With so many different
opinions, it's hard to know who to believe. Are
micropayments an innovative idea that needs just a little
more work to succeed? Or is the concept doomed to fail
due to systemic issues?

The Failures

"There have been a number of attempts to implement micropayments," writes Shirky, "and they have not caught on in even in [sic] a modest fashion." It's true that a small army of companies has tried to enter the space and failed. The list is long and includes companies like Beenz, CyberCash, Cybercent, Cybercoin, Digicash, eCharge, FirstVirtual, Flooz, and MicroMint. Of these, only CyberCash and eCharge even have a Web site anymore. And in the case of CyberCash, it's mainly to announce the company's acquisition by VeriSign. Other players that have been around for awhile, but have little visible market traction in the U.S., include CyberChange (Cardis), eCash, Internet Dollar, MilliCent, Pay2See (MicroMint), and Trivnet.

All of these companies tried (or are still trying) to bring a cash equivalent to the Internet. The need for a cash equivalent arises from the fact that the current equivalent—credit cards—doesn't let companies profitably collect on very small payments. A Gartner Group survey found that forty percent of online merchants want to sell items for under $10 but can't because transaction costs would eat up all of their profits. Credit card companies impose a transaction fee for each purchase. For example, the average business pays credit card companies 30 cents plus 2.5 percent of the purchase for each transaction. Tiny businesses may pay up to 3.5 percent. Some huge businesses may pay less than a percent and no flat fee by virtue of contracts that are based on their average ticket sales. In all cases, credit cards lose their appeal below a certain transaction amount, usually set between $1 and $10. This is why so many merchants require you to make a minimum purchase when you use your credit card.

Although pundits have cited various reasons for the failures in the cash-equivalent services market, most of the explanations are theoretical. For instance, it's often said that users and merchants are afraid of the unknown. Micropayments are certainly a new and tricky area, but the counterargument is also valid. If fear were an absolute bar to adoption, we wouldn't have credit cards or debit cards, which were both unfamiliar to consumers not too long ago.

Similarly, it's said that merchants don't like having to install special software or link their shopping carts to the micropayment provider's Web site. The investment in time and resources that new software requires does pose a problem. However, we must remember that when credit cards were first introduced to brick-and-mortar businesses, store owners didn't like buying scanners and maintaining data links to the verification centers. They do it now because the profit is greater than the investment.

As for concerns about consumer privacy, traditional uses for credit cards carry the same amount of risk. Stores have long been able to track your purchases, and the physical cards are prone to theft and abuse. In some cases, consumers must give up more personal information, like annual salary, when applying for a credit card than for a micropayment system. Through the use of strong encryption and smart policy, a micropayment system can be as safe as credit cards, or even more so.

Perhaps, then, the most viable argument against micropayments is that users strongly favor simple, predictable pricing schemes—in other words, flat rates—and won't accept pay-by-the-drink methods if they have any alternative. This argument favors subscriptions over micropayments. The subscription model has already been implemented by several online content companies like the Wall Street Journal Interactive and Salon.com. Editor & Publisher magazine has a similar system for accessing back issues. And by the time you read this, Yaga, a digital content supermarket, will also be using the subscription model.

The problem with subscription-based content is that consumers must pay up front for a set term, which means they can't be sure of what they're buying. Although some publications retain the same quality and focus for years, many sites these days are changing rapidly because of the market. People, too, change in their tastes and needs. What a consumer pays to download today isn't necessarily what she or he wants to download six months from now.

Wireless Lessons

Lest you think all micropayment systems have failed, the wireless industry has made several advancements recently. In some countries, such as Japan and Finland, micropayments are a popular feature of wireless telephone service. Users of NTT DoCoMo's wireless service can download a variety of graphics, games, and logos, paying a small fee for each item. The charges are simply added to the user's wireless phone bill.

U.S.-based Cingular offers micropayments for downloadable custom ring tones. For 99 cents each, you can make your cell phone ring sound like such classics as "Hard Knock Life" or the theme music from "Scooby Doo." Cingular plans to add games, logos, and graphics before the end of the year. MP3s are also a possibility.

"We are very aggressive in pursuing content and partnerships," says Dahna Hull, director of commerce development. "We want to hear from customers, content providers, and application developers about what they envision." Hull notes that the demand for ring tones has been "unbelievable" since the first day they were

available.

It's still too early, though, to say how many U.S. customers would buy a variety of content via wireless devices. In addition, it isn't clear whether content that can often be obtained for free on wired networks (like stock quotes and weather reports) can be sold on wireless devices, says Peter Rysavy, a wireless technologies consultant. Rysavy questions whether there's any content consumers want enough that they're willing to pay for and receive it over relatively slow wireless networks onto a device with a tiny screen and keyboard. At the moment, ring tones are fun and avoid many of the larger issues. But more complex content will encounter market limitations on the current generation of phones.

Buyers and sellers may also be concerned about the security of current wireless devices. Version 1.1 of WAP requires decryption at a gateway typically operated by the carrier. (See www.hurwicz.com/wireless.html). This so-called "WAP gap" isn't a problem for many types of applications, like downloading restaurant information. But for financial transactions, the general rule is "don't trust what you can't control." WAP 1.2 and 2.0 offer potential solutions to this problem, but they are new and widespread implementation in wireless networks is unlikely before the second half of 2002, according to Gartner Group.

Working Toward Standards

Micropayment services could succeed if there was a standard to unite them. A lack of common rules has impeded the wide scale adoption of micropayment systems.

At one time, the Micropayment Working Group of the W3C attempted to create a standard in the form of a "Common Markup for micropayment per-fee-links." The spec described a set of HTML tags that are useful in e-commerce and micropayment transactions. Unfortunately, there were two key pieces missing. First, there was no specification for a Per Fee Link Handler (PFLH), a module needed for e-wallets to initialize micropayments and process information from the merchant server. Second, there was no standard API to interface an e-wallet to the PFLH, which would make it possible to simultaneously support multiple e-wallets within a single browser.

"The W3C spec doesn't go far enough in many ways, but it provides enough of a clue at the markup level that browsers could provide useful feedback to users as to the cost of a link, to avoid surprises," says Mark Manasse, one of the spec authors.

The standard was never formally approved. The most

recent version is the Working Draft of August 25, 1999. Due to a lack of implementation and interest from the W3C membership, the W3C E-commerce/Micropayment Activity is now closed, reports Michel Thierry, who headed the committee when it was active. (See www.w3.org/e-commerce/Micropayments/Overview.html.)

Some believe that the community lost interest not only in extending the standard, but also in the whole concept of e-wallet plug-ins. Many consumers haven't reacted well to e-commerce systems (micropayments or otherwise) that require installing a plug-in. Bill Densmore, founder and VP of Clickshare, a micropayments company, refers to the e-wallet approach as "a proven failure."

Not everyone agrees with Densmore. Cartio, a spin-off from IBM's Research Laboratory in Haifa, Israel, is a micropayment startup that uses the Common Markup for Micropayment spec. With the help of technology from NewGenPay, Cartio sells news items from five Dutch newspapers. It's currently testing the micropayments system with 1100 consumers in a closed community. When it's satisfied with pricing, presentation, and categorization, it will make the news system available on a national portal. Cartio also expects to go live with five merchants in Europe and five in the U.S. before the end of this year.

Still, some look forward to further progress in standards: "I expect a new XML-based standard to emerge, which will define the interface between the merchant and the consumer environments. Cartio will implement and support that standard," says Jean-Marc Huijskens, CTO for Net.Actuals, a company that offers products and services based on the Cartio service.

Customer Exchange

In an attempt to sidestep some of the problems associated with e-wallets and cash equivalents, Clickshare announced a new customer exchange program this year. The customer exchange concept lets consumers log on to one Web site and continue to browse and purchase from other sites without logging in again.

ClickShare doesn't manage the end-user accounts. Instead, it acts as an intermediary between content owners and audience owners. Audience owners, such as newspapers, banks, telcos, publishers, and retailers already have billing relationships with customers, and manage the user accounts. This is attractive to audience owners, who view loyal customers as a strategic business asset. It's also attractive to customers, who gain online payment ability without having to give out credit card numbers or other personal information to each seller.

Clickshare relies on aggregation to keep costs down. Unlike an online payment service, which charges the sender and credits the receiver more or less immediately, Clickshare transactions are aggregated and paid as a single charge that is added to a bill that the consumer already pays each month.

Because of aggregation, Clickshare can afford to charge companies just 1.5 cents per transaction. There is also a variable charge of up to 5 percent on each transaction (the higher an item's price, the lower the percentage), and an initial sign-up fee of $5000. Compared to credit cards, this fee structure offers clear advantages for processing large numbers of small transactions. For transactions below the 30-cent range, Clickshare is clearly a more viable option. According to Densmore, Clickshare can profitably enable transactions as low as 10 cents.

The process starts with both content owners and audience owners installing software from Clickshare. The content owners mark different classes of content by placing them in different subdirectories. They then notify Clickshare of the price they charge for each product class. This system makes it easy to support various pricing models for different products or customers, such as free, subscription, and pay-by-the-drink (including micropayments). Clickshare authorizes each transaction and reports it immediately to the audience owner. As end users browse the audience owner's service, they're notified of each item's cost.

Content owners play the role of wholesalers in this scenario. They can offer the same content directly to consumers over the Web—the equivalent of retailing. However, if their retail prices are close to wholesale, audience owners won't profit, and they won't be willing to display the product to their customers. Displaying, in this context, means finding the content, sorting it, and packaging it in various ways.

Clickshare's technology is now being used by two major newspaper groups, Belo and MediaNews. Uclick.com, a subsidiary of Universal Press/Andrews McMeel, uses Clickshare to sell premium-content newsletters, crosswords, and other items.

Analyst Avivah Litan says Gartner Group has had no inquiries about Clickshare from customers so far. Nevertheless, Densmore claims that Clickshare is overwhelmed by clients who want the service. "Our problem is deciding which ones to take first."

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With such a great profit potential, most observers are hopeful that a widely accepted micropayments

methodology will emerge soon. Litan believes it's inevitable. She's encouraged by the success of online payment services, like PayPal, that make it easier for content providers to implement commerce functionality. "It's the beginning of virtual cash on Internet," says Litan. "It will extend to large businesses, too."

Soon, one of the biggest vendors may join the micropayments market. Analysts have noted that Microsoft's Passport technology could be used for cash as well as authentication. Microsoft isn't ruling out that possibility. However, Litan advises enterprise clients to stick to pilots for now, and tells them that they should expect to wait perhaps two to three years to implement production micropayment systems.

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